Technical Paper Writings

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Running of due/overdue POH CTRB in Freight Stock

Cartridge Tapered Roller Bearings with technology from Brenco, USA, have the outstanding property of requiring no field lubrication. They are mainly used in all BG wagons fitted with CASNUB Trolley like BOXN, BCN, BTPN, etc. designed by the Indian Railways. For some special applications, these bearings are also used as Wheel bearings for Locomotives (GM Locomotive).

Cases CTRB failure raised :

Though the Load bearing capacity of CTRB for CASNUB Trolley is 22.9t per Axle, initially it was underutilized for 20.3 t per axle. For optimum utilization of 22.9 t load per axle, Wagons have been permitted with extra loading upto CC +6+2 t on all routes and CC +8+2 t on certain nominated sections. These wagons were permitted to run with the extra loading upto a maximum speed of 60 KMPH. Railway Board vide Letter No. 2005 / M (N) 204/2 dated 29.06.05 advised Zonal Railways to provide additional springs on the wagons. With the fitment of additional springs, these wagons were permitted to run upto 70/75 kmph in loaded conditions.

After enhancing to optimum axle load with existing standard of maintenance practice, the failure of roller bearing has been raised in all Zonal Railways. One of the major cause of Roller bearing failure in these types of wagons is running of CTRB with overdue POH.

Periodicity of CTRB POH :

The periodicity of overhauling of CTRB used in freight stock in Indian Railways is laid down in para 5 of RDSO Technical Pamphlet G-81 as 6 years for first POH and 4½ years for subsequent POH. Further para 6.1.2 of G-81 also stipulates that CTRB should not be opened out in Yards/ Sick lines/ROH Depot.

Railway Board Instructions for preventing running of due/overdue POH CTRB:

One of the zonal Railways has raised an issue that during ROH when wheels are turned out for ultrasonic testing, it is difficult to identify whether the CTRB is due for overhauling or not. Further in number of cases during ROH/Sick line attention, the same wheel is not fitted in the bogie of the wagon from which it was taken out. If a wheel is taken out of wagon before its POH date and re fitted in any wagon during ROH/ Sick line attention, the bearing will become overdue for overhauling and may fail in service / cause hot axle for want of timely overhaul. As such Railway Board, to overcome this problem, vide letter No. MW/WA/Genl dated 26.04.2012 has advised all workshops, while overhauling CTRBs, may also mark the overhauling date and workshop code on the back ring in addition to the marking of POH particulars on the outer ring inner diameter on the straight portion in the centre between the raceways as per Para 13(a) of

RDSO Technical Pamphlet G-81). It has been further instructed that in case, CTRB fitted on wheel are found to be due/overdue overhauling in course of ROH/ Sick line attention of the wagon, such wheels must be sent to the nominated workshops for overhauling. Railway Board vide letter No. MW.RB.Genl dated 07.03.14 further clarified with drawings of marking of POH particulars of CTRB on back ring for uniform application to all Railways.

In spite of above instructions possibilities of running of wagons fitted with overdue POH CTRB is not diminished due to the following reasons :

1. The Railway Board's above instruction is very recent and it has not completed one POH cycle of CTRB. Still more than 60 % of CTRB wheels are noticed without marking of POH Particulars on its backing ring . During ROH/ Sick line attention, it is not possible to withdraw these 60% wheel at a time. As such wheels without marking of CTRB POH particulars on its backing ring is allowed to run.
2. In another interesting case, during the time of ROH if remaining period for due POH of CTRB is less than the ROH cycle of the wagons, then the CTRB with overdue POH may run as there is no interim mechanism to replace these CTRBs when become due for POH.

Role of NC organization :

There is no rejection rule for overdue POH of CTRB in IRCA Part-III. Though there is directly no role of NC Organisation to play in maintenance of CTRB, but the NC organization has the responsibility to point out the issues relating to safety of train running in appropriate levels where there are lacunas in maintenance practice.

Probable solution to prevent running of due/overdue POH CTRB :

For preventing running of due/overdue POH of CTRB wheeled wagons, the instructions provided by Rly Board, vide letter Nos. MW/WA/Genl dated 26.04.2012 and MW.RB.Genl dated 07.03.14 should be strictly adhered to.

In addition to the above, another important instruction may be provided in Maintenance practice of ROH and sick line attention that the next POH due date of CTRB should be more than the next due date of POH/ROH of the wagon so that in no case due/overdue POH CTRB is allowed to run.